Claims

1. Spreader structure (10) for insertion into a hollow organ, having spreader rods (12) which, radiating from a first connecting section (14), extend substantially in a longitudinal direction (36) of the spreader structure (10) to a second connecting section (16), are distributed over the circumference of the spreader structure (10), and can be positioned against a wall of the hollow organ by means of radial expansion,
characterized in that the spreader rods (10) have at least one area (22) in the longitudinal direction that has reduced flexural stiffness in comparison to adjacent areas (20, 24).

2. Spreader structure according to Claim 1,
characterized in that the at least one area (22) that has reduced flexural stiffness in comparison to the adjacent areas (20, 24) has a reduced cross sectional area.

3. Spreader structure according to Claim 1 or 2,
characterized in that the at least one area (22) having reduced flexural stiffness has a non-linear rod section.

4. Spreader structure according to one of Claims 1 to 3,
characterized in that the at least one area (22) that has reduced flexural stiffness has a meander-shaped rod section.

5. Spreader structure according to one of Claims 1 to 4,
characterized in that the at least one area that has reduced flexural stiffness has a wave-shaped rod section.

6. Spreader structure according to one of Claims 1 to 5,
characterized in that the at least one area that has reduced flexural stiffness has a zigzag-shaped rod section.

7. Spreader structure according to one of Claims 1 to 6,
characterized in that the at least one area (22) that has reduced flexural stiffness has a square cross section.

8. Spreader structure according to one of Claims 1 to 7,
characterized in that the connecting sections (14, 16) are designed as central hubs of the spreader rods (12) in the area of the longitudinal axis (36) of the spreader structure (10).

9. Spreader structure according to one of Claims 1 to 8,
characterized in that at least one of the connecting sections (16) has an opening (28) through which a central rod (30) can be slid through to the second connecting section (14).

10. Spreader structure according to one of Claims 1 to 9,
characterized in that the connecting sections (14, 16) are substantially cylindrical.

11. Spreader structure according to one of Claims 1 to 10,
characterized in that in the starting position of the spreader structure (10), each of the spreader rods (12), starting from a connecting section (14, 16), has a first section (18, 26) that radially curves outward as well as a subsequent substantially straight second section (20, 24).

12. Spreader structure according to one of Claims 1 to 11,
characterized in that six spreader rods (12) are provided that are evenly distributed over the circumference of the spreader structure (10).

13. Spreader structure (10), in particular according to one of Claims 1 to 12, for insertion into a hollow organ, having spreader rods (12) that extend from a first connecting section (14) substantially in a longitudinal direction (36) of the spreader structure (10) to a second connecting section (16), are distributed over the circumference of the spreader structure (10), and can be positioned against a wall of the hollow organ by means of radial expansion,
characterized in that a filter membrane (40) is arranged between at least two spreader rods (12), and that said filter membrane can assume an substantially unfolded state by means of the radial expansion of the spreader rods (12).

14. Spreader structure according to Claim 13,
characterized in that a filter membrane (40) is arranged between all adjacent spreader rods (12).

15. Spreader structure according to Claim 13 or 14,
characterized in that the filter membrane (40) extends starting from a distal end section of the spreader structure to the midsection thereof.

16. Spreader structure according to one of Claims 13 to 15,
characterized in that the filter membrane (40) extends starting from a proximal end section of the spreader structure to the midsection thereof.

17. Spreader structure according to one of Claims 13 to 16,
characterized in that the filter membrane (40) has pores (42) created by means of boreholes, braided woven strands (44), and/or a net structure.

18. Spreader structure according to Claim 16,
characterized in that the pores (42) have a free diameter ranging between approximately 50 μm and 100 μm.

19. Spreader structure according to one of Claims 13 to 18,
characterized in that the filter membrane (40) is made of nitinol, ePTFE, dacron,

polyester, polyurethane, polyacrylic, silicone, and/or EPDM.

20. Spreader structure according to one of Claims 13 to 19,
characterized in that the filter membrane (40) is attached to at least one spreader rod (12) by means of HF-welding, gluing, recasting or hot pressing.

21. Spreader structure according to one of Claims 13 to 20,
characterized in that the filter membrane (40) is formed between at least two spreader rods (12) by means of dipping and/or spraying.

22. Use of a spreader structure (10) according to one of Claims 1 to 21 as a miniature catch basket for gallstones, urethroliths, kidney or bile duct stones; for trapping foreign bodies in the esophagus; in urology and gastroenterology; in the area of the peripheral and the coronary circulatory systems; as a distal embolic protection; as a temporary vena cava filter; in a septic occluding system and/or in an aneurysm occlusion system, and/or as a blood particle filter or foreign body trap assist, and/or in contrast nephropathy.

23. Use of a spreader structure (10) as a metal electrode according to one of Claims 1 to 22 for introducing heat to a wall of the hollow organ, and in particular for performing an electrocoagulation at the site.

24. Spreader device having a spreader structure (10) according to one of Claims 1 to 21 and having a central rod (30) that is introduced through the spreader structure (10) and in particular through the first connecting section (16) and is attached to the second connecting section (14) on the opposite side, and having a tube (34) that surrounds the central rod (30), by means of which tube the first connecting section (16) can be slid along the central rod (30) in the longitudinal direction thereof.

25. Spreader device according to Claim 24,
characterized by a sheath (38) into which the spreader structure (10), the

central rod (30) and the tube (34) can be inserted and the spreader structure (10) can be opened during or after it has been ejected from the sheath (38).

26. Method of positioning a spreader structure (10) according to one of Claims 1 to 21 within a hollow organ,
characterized by the steps of:
positioning the spreader structure (10) on a spreader device (32) according to Claim 24 or 25;
inserting the spreader structure (10) on the spreader device (32) into the hollow organ while the spreader structure is at least partially compressed, and
expanding the spreader structure (10) is by reducing the distance between the ends of the spreader structure (10) in a longitudinal direction (36).

27. Method of arranging a spreader structure according to one of Claims 1 to 21 in a hollow organ,
characterized by the steps of:
placing the spreader structure (10) inside a sheath (38) while being at least partially compressed;
inserting the sheath (38) into the hollow organ, and
ejecting the spreader structure (10) from the sheath (38), at which point the spreader structure (10) either expands by itself or can be expanded.

28. Method according to Claim 26,
characterized by the steps of:
placing the spreader structure (10) inside a sheath (38) while being at least partially compressed;
inserting the sheath (38) into the hollow organ, and
ejecting the spreader structure (10) from the sheath (38), at which point the spreader structure (10) either expands by itself or can be expanded.